# THE INFLUENCE OF TREE-INDUCED SUCTIONS ON SLOPE STABILITY

N. Ali & S.W. Rees
*Cardiff School of Engineering, Queen's Buildings, Cardiff CF24 3AA, United Kingdom*
*E-mail: AliN1@cardiff.ac.uk,ReesS@cardiff.ac.uk*

ABSTRACT: The development and application of a numerical model of water uptake in the vicinity of established trees is presented. The model is then applied to predict water content (and therefore suction) changes within a typical soil slope. The research indicates that tree-induced suction variations can cause the factor of safety against failure to by as much as seven percent. The precise location of the tree in relation to the slope is also assessed in this work. These 'hydraulic' effects are independent to 'mechanical' effects that may arise from root reinforcement, windthrow, weight of vegetation etc. Therefore, further work is needed to consider the combined effects of vegetation.

Keywords: Suction, Slope, Trees, Unsaturated, Simulation